

# **SECTION 2**

## **NV200 MANUAL SET**

### **FIELD SERVICE MANUAL**

**INTELLIGENCE IN VALIDATION**

Innovative Technology assume no responsibility for errors, omissions, or damages resulting from the use of information contained within this manual.



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## 2. FIELD SERVICE MANUAL

This section is one part of a complete manual set: typically, a field service engineer who is maintaining the product would use this section.

This section contains the essential information that the field engineer needs to clean, maintain and fault find an NV200 Validator that is installed in a host machine.

The NV200 Validator has been designed to minimise any problems or performance variations over time. This has been achieved by careful hardware and software design; this attention to the design means there is very little user maintenance required.

### 2.1 Cleaning

The NV200 Validator has been designed in a way to prevent damage and airborne contamination reaching the optical sensors; however, depending upon the environment the NV200 may require occasional cleaning.



#### Caution!

Do not use solvent based cleaners on any part of the NV200 unit.

Do not use solvent based cleaners such as alcohol, petrol, methylated spirits, white spirit or PCB cleaner. Using these solvents can cause permanent damage to the units; only use a mild detergent solution as directed below.

You can clean the NV200 note path with the head unit still fitted to the chassis, although you may find it easier to remove the head from the chassis assembly.

To remove the NV200 head unit, first unlock the NV200 cashbox and head release lock (if fitted)

Then, lift the silver head release catch located on the front of the NV200

Finally, slide the head unit forward and lift it off the chassis



**WARNING!**

Disconnect power BEFORE any cleaning operation

You should disconnect the power BEFORE carrying out any cleaning operations to avoid the risk of causing damage to the validator.

After removing the head unit, to open the note path cover, pull the top cover release latch forward (towards the bezel) and lift the cover as shown here (it is recommended to also remove the front bezel to allow correct cleaning of the note path guides):



The note path is now visible and can be cleaned. Carefully wipe the surfaces with a soft lint free cloth that has been moistened with a water and mild detergent solution (e.g. household washing up liquid) - be very careful when cleaning around the sensor lenses and make sure they are clean and dry before closing the cover and restarting the unit.

**Caution!**

Do not use any lubricants.

Do not lubricate any of the note transport mechanism or any part of the note path, as this can affect the operation of the validator.

**WARNING!**

Do not try to disassemble

Do not attempt to disassemble the validator head – trying to do this could cause personal injury and will damage the unit beyond repair.

## 2.2 Fault Finding - Flash Codes

The NV200 Validator has inbuilt fault detection facilities. If there is a configuration or other error, the NV200 front bezel will flash in a particular sequence, and a summary of the Bezel Flash Codes for the NV200 is shown below:

<b>Flashes</b>		<b>Indicated Error</b>	<b>Comments</b>
<b>Red</b>	<b>Blue</b>		
<b>0</b>	<b>0</b>	None	
<b>1</b>	<b>1</b>	Note path open	Close note path
	<b>2</b>	Note path jam	Remove obstruction and follow the cleaning procedure in Subsection 2.1 of this manual
	<b>3</b>	Unit not initialised	Contact ITL technical support
<b>2</b>	<b>1</b>	Cashbox removed	Refit cashbox
	<b>2</b>	Cashbox jam	Remove trapped notes
<b>3</b>	<b>1</b>	Firmware checksum error	Download new firmware
	<b>2</b>	Interface checksum error	
	<b>3</b>	EEPROM checksum error	Download new firmware
	<b>4</b>	Dataset checksum error	
<b>4</b>	<b>1</b>	Power supply too low	Check power supply
	<b>2</b>	Power supply too high	
	<b>3</b>	Card format	Reprogram programming card
	<b>4</b>	Payout reset	Turn power on and off
<b>5</b>	<b>1</b>	Firmware mismatch	Reprogram unit

## 2.3 Technical Specifications

The full technical specifications for the NV200 Validator can be found in Section 6, Appendix B of this manual set. A brief summary is given here:

<b>DC Voltage</b>	<b>Minimum</b>	<b>Nominal</b>	<b>Maximum</b>
Absolute limits	10.8 V	12 V	24 V **
Supply ripple voltage	0 V	0V	0.25 V @ 100 Hz
<b>Supply Current</b>			
Standby			400 mA
Running			1.5 A
Peak (motor stall)			3 A

<b>Interface Logic Levels</b>	<b>Logic Low</b>	<b>Logic High</b>
Inputs	0 V to 0.5 V	+3.7 V to +12 V
Outputs (2.2 kΩ pull-up)	0.6 V	Pull-up voltage of host interface
Maximum current sink		50 mA per output



### WARNING!

Use correct supply voltage

**\*\* NOTE:** Only the later models of NV200 are capable of using a supply voltage up to 24 V DC. Earlier versions have a maximum voltage of 13.2 V DC.

See Section 6, Appendix E of this manual set for information on how to identify if your validator supports 24V DC operation.

We recommend that your power supply is capable of supplying 12V DC at 4.3 A, or 24V DC at 2.1 A.

## 2.4 Frequently Asked Questions

a. What settings should I use on the DIP switches on the rear of the unit?

- Look at the DIP switch tables in Section 1 of this manual set (subsection 1.3). By default, all DIP switches are turned OFF.

b. I am having problems programming the NV200 using a DA3 unit.

- There can be many reasons why you may be having problems using a DA3 unit to program the validator. Please check the following:
  - That the DA3 firmware is up to date
  - That the VPS is up to date
  - Make sure pin 9 is removed from the CN00215 ribbon cable (as shown here):



- If using override download, make sure the file is selected for override during the DA3 update
- Check the validator is using SSP interface - there is no visible indication as to which interface the NV200 is using, so toggle dipswitch 8 on the NV200 and retry the update procedure.

If the problem persists, contact ITL Support for further assistance.

c. The cashbox is inserted but the bezel is flashing (2 red flashes and 1 blue flash - cashbox removed).

Make sure that the cashbox is fully inserted and latched. If the problem persists, contact ITL Support for further assistance.

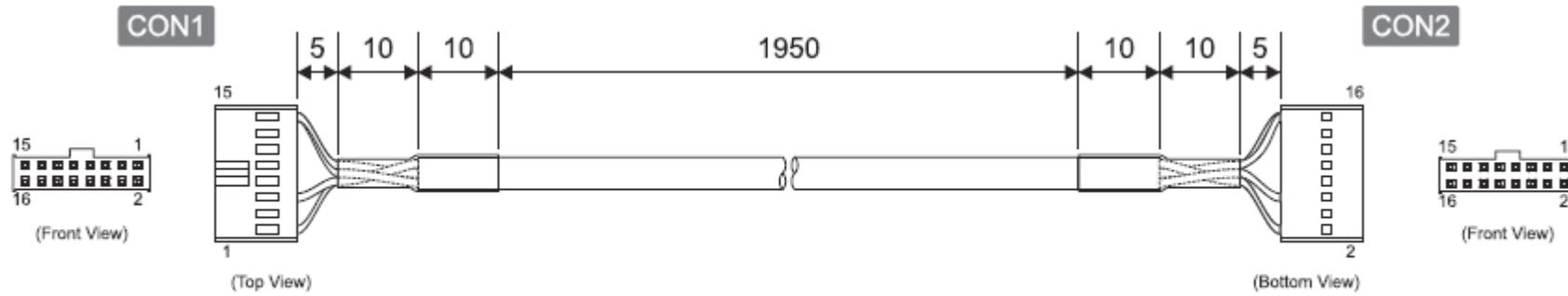
## 2.5 Spare Parts

Full details of the interface cable connector pinouts, connector types / makes and other related information can be found in Section 4 of this manual set.

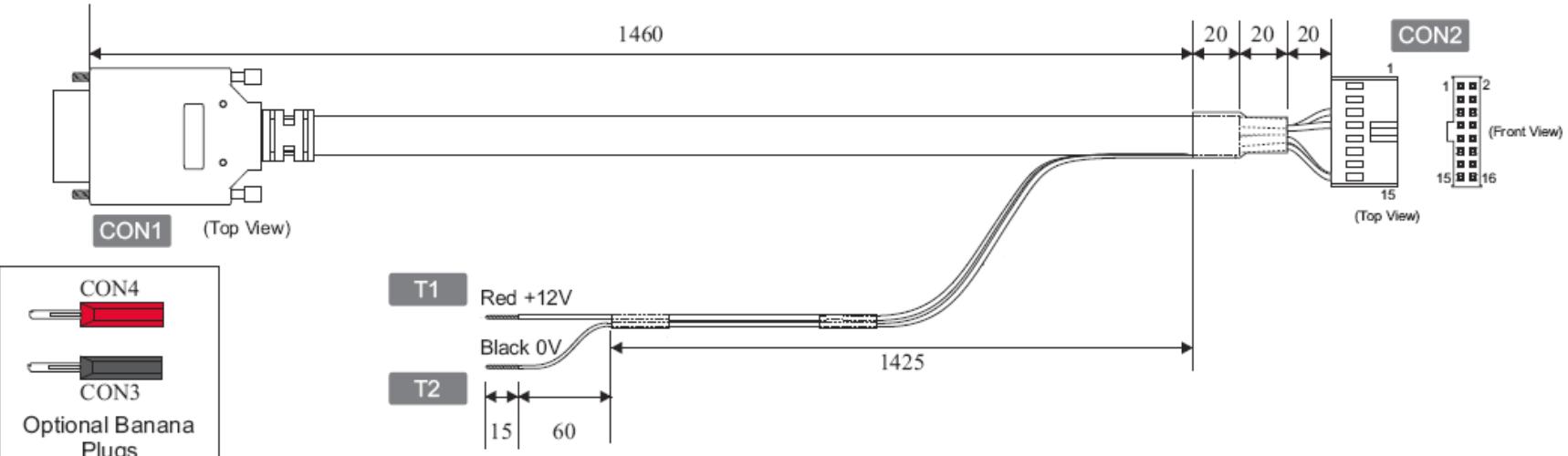
The user can obtain the following parts for the NV200 validator:

ITL Part Number	Description	Details
CN00214	USB Cable	USB 2.0 Compliant Type A to Type B cable

**Notes:** USB cable should be USB 2.0 compliant, electrically shielded and less than 5 metres long.

ITL Part Number	Description	Details
<b>CN00292</b>	IF10 – SSP to Binary interface cable	Provides connection between IF10 module and NV200
		
<b>Notes:</b>		

ITL Part Number	Description	Details
<b>CN00414</b>	RS232 to NV200 interface cable	Provides 12V or 24V supply and RS232 communications to NV200



**Notes:**

ITL Part Number	Description	Details
<b>CN00459</b>	NV200 power cable	Provides 12V or 24V supply only to NV200

CON1  
(Top View)  
19  
1  
20  
2  
(Front View)  
1

1000mm

30 | 15 | 87 typ | 15 | 25 | 5

Stripped (no tinning)

**Notes:** Recommended ferrite core is Fair-Rite Part Number 0443166651.

ITL Part Number	Description
<b>PA00610</b>	Bezel Assembly
<b>PA00621</b>	NV200 Validator Head Assembly
<b>PA00629</b>	Cashbox Final Assembly
<b>PA00630</b>	Chassis Assembly
<b>PA00650</b>	Lock Assembly

